

What is claimed is:

1. A coating apparatus that coats a liquid material on a substrate in a coating chamber, comprising:

5 a first liquid supply system provided that supplies the liquid material to the coating chamber, and

a second liquid supply system provided that supplies a liquid to the first liquid supply system that cleans or that deactivates the liquid material remaining at least either in the coating chamber or in the first liquid supply system.

10 2. The coating apparatus according to claim 1, further comprising a control mechanism provided with the coating chamber that controls an atmosphere in the coating chamber independently.

3. The coating apparatus according to claim 1, wherein a plurality of the second liquid supply systems are provided and at least one of the second liquid supply systems is
15 a system that supplies a cleaning agent for cleaning the liquid material remaining at least either in the coating chamber or first liquid supply system, and at least one other of the second liquid supply systems is a system that supplies a deactivation agent for deactivating the liquid material remaining at least either in the coating chamber or first liquid supply system.

20 4. The coating apparatus according to claim 1, wherein the coating chamber has a spin coater provided therein.

5. The coating apparatus according to claim 1, wherein the first liquid supply system comprises a container that accumulates the liquid material, a drip rate control section that controls a quantity of the liquid material that is drawn out from the container,
25 and a nozzle section that discharges the liquid material, and wherein the container, drip

rate control section, and nozzle section are positioned in a vertical direction in this order from top to bottom, and a liquid material pipe that connects each of these sections does not have a portion that is horizontal relative to the vertical direction such that the liquid material pipe all runs in a vertical direction.

- 5 6. The coating apparatus according to claim 1, wherein the coating chamber has a droplet discharge section provided therein that discharges micro droplets, and the droplet discharge section has a function of dripping micro droplets on a predetermined position on a substrate held on a stage by moving relatively to the stage holding the substrate.
7. The coating apparatus according to claim 1, wherein the coating chamber has a
10 waste liquid collection mechanism provided therein that collects as waste liquid that is no longer necessary after having been introduced into the coating chamber.
8. A thin film forming method that coats a liquid material on a substrate in a coating chamber to form a thin film on the substrate, comprising:
- supplying the liquid material to the coating chamber by a first liquid supply
15 system to form a thin film on the substrate; and
- subsequently supplying a liquid that cleans the liquid material or that deactivates the liquid material to the first liquid material supply system by a second liquid supply system such that the liquid material remaining at least either in the coating chamber or in the first liquid supply system is washed or deactivated.
- 20 9. A thin film forming apparatus comprising:
- the coating apparatus according to claim 1; and
- a heat processing apparatus that heats a substrate on which a liquid material has been coated by the coating apparatus, wherein
- the coating apparatus and the heat processing apparatus are each provided with a
25 control mechanism that controls an atmosphere in a processing chamber for processing

the substrate independently for the coating apparatus and for the heat processing apparatus.

10. The thin film forming apparatus according to claim 9, further comprising a preprocessing apparatus that performs preprocessing such as cleaning a surface of the substrate, wherein the preprocessing apparatus is also provided with a control mechanism that controls independently an atmosphere in a processing chamber where processing of the preprocessing apparatus is performed.
11. The thin film forming apparatus according to claim 9, further comprising a connecting chamber that is connected to the processing chamber of each of the apparatuses, wherein the connecting chamber is also provided with a control mechanism that controls independently an atmosphere in the connecting chamber.
12. A semiconductor device manufacturing method comprising forming either functional layer of each functional layer constituting a semiconductor device by coating a liquid material containing a constituent element of the functional layer on a substrate, wherein
the step of forming the functional layer comprises using the thin film forming method according to claim 8 to form the functional layer.
13. An electro-optic device comprising a semiconductor device manufactured by the semiconductor device manufacturing method according to claim 12.
14. An electronic instrument comprising the electro-optic device according to claim 13.